

PO Job Risk Assessment

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|--|--------------------------------------|---|-------------------|------------|--------------------|-------------------------------|
| Name(s) of Risk Team Members: M. Babzien, W. Lenz, S. Stoll, S. Warhol, R. Gill (facilitator) | Point Value → Parameter ↓ | 1 | 2 | 3 | 4 | 5 |
| Job Title: Laser use in the Physics Department Job Number or Job Identifier: PO-JRA-015 | Frequency (B) | ≤once/year | ≤once/month | ≤once/week | ≤once/shift | >once/shift |
| Job Description: General use of lasers throughout the Department both in general labs and specific laser areas. | Severity (C) | First Aid Only | Medical Treatment | Lost Time | Partial Disability | Death or Permanent Disability |
| Training and Procedure List (Optional): | Likelihood (D) | Extremely Unlikely | Unlikely | Possible | Probable | Multiple |
| Rev. #: 0 | Date: February 17, 2005 | | | | | |
| Stressors (if applicable, please list all): Time constraints, cramped working areas | | Reason for Revision (if applicable): | | | Comments: | |

| | | | | Before Additional Controls | | | | | | | After Additional Controls | | | | | |
|---|-----------------------------|--------------------------------|---------------|----------------------------|-------------|------------|--------------|---------------|---------------------------------|---------------|---------------------------|-------------|------------|--------------|---------------|------------------|
| Job Step / Task | Hazard | Control(s) | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | Control(s) Added to Reduce Risk | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | % Risk Reduction |
| Setting up or installing laser system – mechanical work | Working with hand tools | See PO-JRA-016 | N | 1 | 1 | 2 | 4 | 8 | | | | | | | | |
| | Electrical work, routine | See PO-JRA-006 | N | 1 | 1 | 2 | 2 | 4 | | | | | | | | |
| | Manual lifting | See PO-JRA-004 | N | 1 | 1 | 3 | 3 | 9 | | | | | | | | |
| | Material handling machinery | See PO-FRA-006 | N | 2 | 1 | 3 | 2 | 12 | | | | | | | | |

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| Job Step / Task | Hazard | Control(s) | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | Control(s) Added to Reduce Risk | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | % Risk Reduction |
| Setting up or installing laser system – mechanical work (cont'd) | Machine shop work | See PO-JRA-011 | Y | 1 | 1 | 2 | 2 | 4 | | | | | | | | |
| Installation of optical elements | Working with hand tools | See PO-JRA-016 | N | 1 | 1 | 2 | 2 | 4 | | | | | | | | |
| Alignment and adjustment of optical elements using laser | Eye injury from laser exposure | Laser power level, laser class, laser light frequency range, PPE, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, postings | N | 1 | 3 | 4 | 2 | 24 | | | | | | | | |
| | Skin burn from laser exposure | Laser power level, laser class, laser light frequency range, PPE, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, postings | N | 1 | 3 | 1 | 1 | 3 | | | | | | | | |
| | Fire due to laser igniting materials | Laser power level, laser class, laser light frequency range, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, postings | N | 1 | 3 | 1 | 1 | 3 | | | | | | | | |

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| Job Step / Task | Hazard | Control(s) | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | Control(s) Added to Reduce Risk | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | % Risk Reduction |
| Operation of laser | Eye injury from laser exposure | Laser power level, laser class, laser light frequency range, PPE, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, postings | N | 2 | 4 | 4 | 1 | 32 | | | | | | | | |
| | Skin burn from laser exposure | Laser power level, laser class, laser light frequency range, PPE, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, postings | N | 2 | 4 | 1 | 1 | 8 | | | | | | | | |
| | Fire due to laser igniting materials | Laser power level, laser class, laser light frequency range, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, postings | N | 2 | 4 | 1 | 1 | 8 | | | | | | | | |
| | Cryogenics work, where applicable | See PO-JRA-008 | N | 1 | 3 | 1 | 2 | 6 | | | | | | | | |
| | Compressed gas work, where applicable | See PO-JRA-012 | N | 1 | 4 | 3 | 1 | 12 | | | | | | | | |

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| Job Step / Task | Hazard | Control(s) | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | Control(s) Added to Reduce Risk | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | % Risk Reduction |
| Maintenance of laser system | Eye injury from laser exposure | Laser power level, laser class, laser light frequency range, PPE, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, LOTO, postings | Y | 1 | 2 | 4 | 2 | 16 | | | | | | | | |
| | Skin burn from laser exposure | Laser power level, laser class, laser light frequency range, PPE, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, LOTO, postings | Y | 1 | 2 | 1 | 1 | 2 | | | | | | | | |
| | Fire due to laser igniting materials | Laser power level, laser class, laser light frequency range, room/laser interlocks, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, LOTO, postings | Y | 1 | 2 | 1 | 1 | 2 | | | | | | | | |
| | Electrical shock from power supply | LOTO, training, PPE, working hot permit, work planning, procedures | Y | 2 | 2 | 4 | 2 | 32 | | | | | | | | |
| | Injury from chemical exposure (laser dye) | PPE, MSDS, CMS, working with chemicals subject area, training, work planning, also see PO-JRA-010 | Y | 2 | 3 | 2 | 2 | 24 | | | | | | | | |

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| Job Step / Task | Hazard | Control(s) | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | Control(s) Added to Reduce Risk | Stressors Y/N | # of People A | Frequency B | Severity C | Likelihood D | Risk* AxBxCxD | % Risk Reduction |
| Testing laser interlocks | Eye injury from laser exposure | Laser power level, laser class, laser light frequency range, PPE, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, LOTO, test procedure, postings | N | 2 | 2 | 3 | 1 | 12 | | | | | | | | |
| | Skin burn from laser exposure | Laser power level, laser class, laser light frequency range, PPE, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, LOTO, test procedure, postings | N | 2 | 2 | 1 | 1 | 4 | | | | | | | | |
| | Fire due to laser igniting materials | Laser power level, laser class, laser light frequency range, laser SOP, work planning, training, Tier 1, housekeeping, design of optical path, LOTO, test procedure, postings | N | 2 | 2 | 1 | 1 | 4 | | | | | | | | |
| Further Description of Controls Added to Reduce Risk: | | | | | | | | | | | | | | | | |
| *Risk: | 0 to 20 Negligible | 21 to 40 Acceptable | 41 to 60 Moderate | | 61 to 80 Substantial | | 81 or greater Intolerable | | | | | | | | | |